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ABSTRACT

This long-range action plan identifies needed research and development activities in vocational education to improve the productivity of the workforce. It is designed to assist individuals at the state level to plan and design programs and services that will have an impact on improving the productivity of the workforce. It is divided into three main sections. The first is an introduction that discusses productivity and briefly summarizes the monograph, "Potential Roles for Vocational Education in Improving the Productivity of the Workforce," which served as the basis for the development of this plan. Section 2 presents general recommendations and a rationale for further research, curriculum development, professional development, and dissemination activities in vocational education to improve the productivity of the workforce. The final section makes specific recommendations for vocational education and research and development activities. They are presented in four major categories--research, curriculum development, professional development, and dissemination--and are prioritized as A (most important), B, or C. Activities helpful for initiating action are suggested for each recommendation. (YLB)

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Assessment of the Impact Vocational Education Can Have on Improving Worker Productivity

Long-Range Action Plan

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INTRODUCTION

The Concept of Productivity

Productivity means many things to different people. It is a concept which is often misinterpreted, and to many, conjures up images of speeded-up assembly lines.

Productivity affects virtually all broad economic concerns, e.g., industrialization, automation, tax reform, cost-price squeeze, and competition in foreign markets (Kendrick, 1961). Productivity growth is more important to all Americans. It is a key factor in determining improvements in living standards because it fuels economic expansion, provides for long-run growth in jobs, and helps to restrain inflation.

The slowdown in the productivity growth rate in the United States during the past fifteen years has caused serious concern (Paul, 1980). According to Parrish (1980), the annual increase in productivity declined from about three percent in the 1950s to about two percent during the last half of the 1960s and the early 1970s, to about one percent during the past five years. In 1980 there was a decline of four hundreths of a percent. The Council of Economic Advisors stated that the slowdown in productivity growth in the United States is one of the most significant problems in recent years.

Productivity is a complex concept. The topic is surrounded by controversy and confusion with disagreement on definitions, measurement techniques, and identification of factors which contribute to a decline or increase in the productivity growth rate. Despite the variations in definitions and measurement techniques, there is general agreement on the importance of the problem and the need for further investigation. Much needs to be learned about the effects of various factors on productivity.

A prerequisite for any discussion of productivity is the recognition of considerable overlap among the topics and issues surrounding the concept. It is difficult, if not impossible, to separate other economic development topics and issues such as unemployment, inflation, and job creation from productivity.

The evidence suggests that vocational education can have an impact on worker productivity. However, further investigation is needed to describe the relationship and to identify specific areas of potential impact. There are many potential expanded roles which vocational education might pursue in an attempt to improve the productivity of the workforce. However, vocational education must determine just where it can most effectively impact on productivity. Vocational education cannot do it all.

Productivity is a broad concept which includes the effects of capital investment, technology, and labor or human capital. Although vocational education may influence all of these areas to some degree, it appears that vocational education has the most direct impact on human capital.

Purpose of Long-Range Action Plan

This long-range action plan was developed to identify needed research and development activities in vocational education to improve the productivity of the workforce. Recommendations are included in four major categories: research, curriculum development, professional development, and dissemination. The publication is designed to assist individuals at the state level to plan and design programs and services which can impact on improving the productivity of the workforce.

As the major part of the project to assess the impact vocational education can have on improving worker productivity a monograph was compiled.

The monograph entitled, Potential Roles for Vocational Education in Improving the Productivity of the Workforce served as the basis for the development of this long-range action plan.

Summary of Monograph

The major purpose of the monograph is to report on the impact vocational education can have on improving worker productivity. Specifically, the monograph presents a discussion of the relationship between vocational education and productivity and identifies potential areas for impact. To accomplish this purpose, a comprehensive search of literature and research was conducted to identify employee barriers to increased worker productivity and existing education and training programs and services which can help to increase worker productivity.

An advisory panel was established consisting of representatives from vocational education, the employment and training system, and commerce and industry to help provide direction to the project and to react to and critique the initial drafts of the monograph chapters. Obviously, the areas for potential impact identified and discussed in the monograph do not represent a complete list of all the possibilities. In fact, only seldom was agreement expressed on the topic at hand by all members of the advisory panel. However, the chapters included in the monograph and the areas identified as being those where vocational education can have increased impact on improving the productivity of the workforce, at the very least, do represent an important, and in some cases, an expanded role for vocational education.

The first chapter discusses the concept of productivity and its relationship to vocational education and training. Chapter two focuses on the changing characteristics of the workforce examining various subpopulations, the educational level and expectations of workers, and implications

for productivity and vocational education. Chapter three presents a discussion of the various types of vocational education and their potential impact on productivity. The fourth chapter considers the effect on productivity of adjustments in organizational structures and discusses the role of vocational education in these adjustments. Chapter five discusses the relationship between small businesses and increased productivity and identifies target groups who would benefit from entrepreneurship education. The sixth chapter considers the importance of establishing cooperative efforts to increase productivity among vocational education, the private business sector, and federal employment and training programs. Finally, chapter seven discusses the future implications for productivity and vocational education related to economic and demographic trends such as a decentralized population, the geographic shift in population from the north to the south, moving from a national to a local economy, problems in measuring productivity, and restructuring from an industrial society.

RATIONALE AND GENERAL RECOMMENDATIONS

The following pages present general recommendations and a rationale for further research, curriculum development, professional development, and dissemination activities in vocational education to improve the productivity of the workforce. Specific recommendations and suggested activities are included in the next section of the plan.

Research Activities

Effects of Vocational Education and Training on Productivity. The evidence suggests that vocational education can have an impact on worker productivity. However, further investigation is needed to describe the relationship, to determine procedures for implementing programs designed to improve worker productivity, and to evaluate such programs.

Strategies to increase the overall rate of productivity which involve more effective uses of human resources must take into account the effects of job training. The increased awareness of the crucial role education and training may play in economic development is evidenced in a report by the Joint Economic Committee of Congress (1979):

> In our view, it is possible to enhance dramatically our potential GNP growth prospects in the coming decade with a carefully designed program aimed at promoting capital spending and upgrading worker skills (emphasis supplied). Not only would such an approach raise productivity, and therefore our GNP potential, but it would also bring about further improvements in the areas of inflation, employment and our balance of payments (p. 64).

To the extent that youth and adults experience vocational education and training programs which are relevant and effective, the productivity of the workforce may be increased.

Although the importance of job training programs has been recognized, little research has been conducted to determine actual effects of training on productivity. Follow-up studies of vocational education students, which focus on individual productivity, need to be conducted.

Prominent Values and Expectations of Workers As They Affect Productivity. During the past decade evidence has emerged that worker's values and expectations of work have changed (Kerr, 1979; Yankelovich, 1979). Yankelovich (1979) suggested that the "new breed" has become more concerned with self-fulfillment and that success in the workplace is not enough to satisfy these yearnings for self-fulfillment. Vocational educators need to be aware of the changing values and expectations of workers in order to provide relevant programs which meet the needs and expectations of students.

Changing values of workers can lead to different expectations of work. Kerr (1970) summarized these expectations in the following way:

> More people want "good" jobs, and there is an increasing rejection of "bad" jobs, i.e., jobs in which the employee has few, if any, fringe benefits and is not covered by formal or informal seniority rules, routine factory or office jobs; and "dirty" work. The definition of a "good" job comes more and more to include some individual and small group choices about its terms and conduct, sometimes even over and beyond collective bargaining (p. xi).

As indicated, a good job is not only related to the work itself, but also to work conditions. Expectations of workers are increasingly more concerned with the opportunity to participate in decision making, the right to dissent, more checks and balances on the exercise of authority, better benefits, and a more open and interactive workplace environment that resembles their values and lifestyles (Rosow, 1979; Kerr, 1979).

While the values and expectations of many workers are changing, some workers have maintained more traditional values, creating a diverse

workforce where individual differences are becoming more prominent and accepted. Some people also believe that the values of many young workers are again becoming more traditional. Further research needs to be conducted to investigate which values, expectations and motivational factors are prevalent among workers today.

Effects of Organizational Changes on Productivity. The organizational structure of a business enterprise affects how people work together to achieve the goals of the enterprise in the most effective manner (Sibson, 1976). The appropriateness of this structure can have an impact on employee productivity. An awkward organizational structure can inhibit the effective and productive work of individuals or between groups of people. Although an appropriate organizational structure does not guarantee higher productivity, it can help to eliminate many barriers to productivity and provide a climate for more productive work. In many cases, an appropriate organizational structure, or improved quality of working life, can lead directly to an increase in job satisfaction. Vocational education can help students become aware of changing organizational structures and understand the roles of workers in affecting such changes and/or adapting to them.

Adjusting the organizational structure as one means to increase employee productivity and job satisfaction has become increasingly common in the past decade (Katzell, 1975). Adjustments have included changes in supervisory styles, methods of increasing employee participation, job redesign, and work schedules which allow employees to have more control over their work and personal time. The results of these changes in relation to productivity have been mixed. Some programs have had a positive impact on productivity and job satisfaction where others have had little or

no effect. Further research needs to be conducted concerning the effects of organizational changes on productivity.

Productivity Measurement. One of the major problems concerning productivity is inadequate measurement techniques. Problems related to productivity measurement include: 1) no universal measures, b) no definitions of changes in outputs, c) no measures of job performance, d) no idea of all the factors involved, and e) no agreement if measures are related or should be related to input or output. Productivity measures had more meaning during the war economy when there were more production jobs with similarity of standards and limited products. Shifting from an industrial to a service economy presents a strong challenge to the validity of productivity measures. Service sector outputs are difficult to measure. Current measurement techniques consider service occupations to be less productive. Vocational education will be increasingly involved in training for new emerging and service sector occupations. If the effectiveness of vocational education programs is based, in part, on the productivity of workers, then accurate measurement is essential. Further investigation is needed to determine the validity of current measurement techniques and to improve productivity measures so that they reflect the productivity of workers in the nation accurately.

Analysis of Factors Which Have Affected Productivity Growth in Other Nations. The slowdown in the productivity growth rate in the United States during the past fifteen years has caused serious concern. The annual increase in productivity declined from about three percent in the 1950s to four hundreths of a percent in 1980. During this time international competitors have maintained four to seven percent annual increases.

Although there are many differences between societies, much can be learned by studying factors which have affected productivity growth in other nations. One example is Japan. Investigation of the teacher education system, commerce and industries' management system and the workers' skills and attitudes could provide insight into ways vocational education could impact on worker productivity. Much of the productivity growth in Japan can be traced to a workforce that is itself interested in finding and initiating new ways of improving productivity. Productivity in Japan is not seen solely as a management function. It is valued and rewarded by both labor and management. An investigation of how Japanese workers develop such attitudes toward productivity could lead to implications for vocational education programs.

Effectiveness of Vocational Education and Training Delivery Systems on Productivity. Currently, the most prominent delivery system for vocational education is secondary or post-secondary schooling. This delivery system is effective for many youth and adults preparing to enter the workforce. Yet, as the composition of the labor force changes, and as modern technology and organizational changes alter the design of jobs and needed skills, new methods of delivery may need to be established.

In the decade ahead there will be an increased number of older workers and workers from special subpopulations, such as the handicapped or limited English speaking. As job skills become absolute, many workers will need retraining. Many of these workers cannot afford the time or money to leave their jobs and return to school for vocational training. Thus, the effectiveness of a variety of delivery systems, such as in-plant training or intensive short-term skill training, needs to be investigated.

Curriculum Development

General Work Skills and Attitudes Toward Work. The effects of technology have created changes in the skill requirements for many vocational and technical occupations. Very few students, or even present workers, can look forward to a lifetime career in an occupation where specific job skills and knowledge requirements will remain unchanged. Wilms (1974) reported finding growing evidence that getting a job in the future will depend more on a student's general abilities than on occupational skills. He points out that employers want employees who are not narrowly trained, but who can read, write, compute, solve problems, and adequately express themselves to their co-workers and to customers. Therefore, skills that are applicable to a wide range of occupations and careers appear to be needed by workers attempting to obtain or maintain satisfying and productive jobs.

There appears to be general agreement among educators and employers as to what set of skills are basic to successful employment. Ginzberg (1977) indentified the skills of reading, writing and accounting as basic skills required for a person to fit into our economy. Skills that center on the human aspect of work are also important. Leach (1980) identified these skills as interpersonal relations, problem solving and decision making, communicating effectively, recognizing and understanding authority and responsibility, coping with conflict and change, and adapting to and planning for the future.

Attitudes toward work depend in part on how important a person's work is to him or her what a person wants, needs or expects from a job, and how strongly a person likes or dislikes a job (Katzell, 1979). An individual's attitude toward the meaning and value of work is an important

factor in successful adjustment to work. It may also affect statisfaction with work and productivity.

Attitudes of individuals toward work are constantly changing. Recently there has been much written on the attitudes of the "new breed" of workers. Yankelovich (1970) described the "new breed" as workers who take the traditional definition of a good job - steady work, good pay, comfortable and safe conditions - for granted. They are now desiring jobs which offer freedom, interesting and challenging work, and a voice in decision making. These attitudes may have positive influences on productivity if the workplace keeps pace with the changes in attitudes. Examples of possible adjustments include: redesigning jobs so workers are challenged and can see the consequences of what they do, increasing the flexibility of work schedules, offering sabbatical leaves so workers can return to school, creating new careers in areas of heightened public concern, creating better mechanisms for sharing power up and down the line, and increasing the flexibility of career structures. Attitudes which may have a negative influence on productivity, often arise because workers do not know what to expect from work and are disappointed or frustrated. The development of realistic expectations and positive attitudes toward work begins early in life and can be greatly influenced during the school years.

Vocational education can play an important role in helping students to develop positive attitudes toward work, thereby increasing job statisfaction and often times productivity. Curriculum needs to be developed and/or adapted to teach general work skills and to enhance the development of positive attitudes toward work.

Professional Development

Although the declining productivity growth rate in the United States has received much attention during the past several years, little has been done to help teachers understand the roles vocational education can have in improving worker productivity. Many teachers have expressed concern that they do not have the necessary skills to help students learn about and improve their productivity. For example, Chiti (1980) identified reasons given by Illinois cooperative vocational education teacher-coordinators for not teaching skills involving the human aspects of work. Among the reasons given were that many teachers did not feel qualified to teach these skills and that there is a lack of available curriculum materials for teaching such skills.

Results of research and ensuing development of methods and materials to increase the productivity of the workforce will have little value or impact if they are not understood and utilized by those who plan and conduct vocational education programs. Information on ways in which vocational education can improve worker productivity needs to be incorporated into teacher education programs. Inservice education related to productivity needs to be provided to vocational educators who are currently teaching in order to help them gain an awareness of the importance of the topic, available curriculum related to productivity, and competence in teaching skills which affect productivity. In addition, technical assistance should be available to individuals or local school districts who wish to incorporate productivity concepts in their curricula.

Managerial Training and Supervisory Practices. Vocational education has the opportunity to become involved with management training, perhaps in community colleges or within business organizations. As changes in the

workplace occur, supervisors need to adapt to different roles and responsibilities. For example, in a job redesign program the supervisor's role often changes to one where there is less authority over subordinates. Flexitime also creates new demands on supervisors in terms of scheduling problems and providing supervision beyond the eight hour day of the supervisor.

A participatory style of management has been linked to increased employee morale and high productivity. A participative style allows managers and workers to share in the decision making process to achieve mutually agreed upon ends. Supervisors often need retraining to adapt to new situations, to develop new management styles, and to help motivate employees effectively to increase productivity. Vocational educators need to be prepared to assist supervisors in developing skills which have a positive influence on worker productivity.

Education and Training for Self-Employment. One sure way to create new jobs and increase overall productivity in the economy is to promote the health and survival of existing small businesses and to develop an environment which fosters growth and vitality for new firms. A greater emphasis needs to be placed on the option of self-employment as a career option at all levels of education. The concept of owning and operating a small business should be introduced to career education programs at the elementary level and explored further at the secondary level. Opportunities for education and training for self-employment should be made available to all students through vocational education programs at the secondary and post-secondary levels.

Community colleges should be encouraged to expand their efforts to provide education and training in small business management. How educational programs can be modified to prepare people better for self-employment needs to be determined. Special efforts should be undertaken to prepare women and minorities for self-employment. The universities need to place emphasis in their teacher education programs on the training of vocational educators to work with small business owners and managers and to become knowledgable and competent in teaching skills necessary for successful self-employment. The universities can also help to train needed small business consultants and can conduct research to learn more about the characteristics of successful small business owners and how to nourish these characteristics.

Family Living and Quality Child Care. The separation of occupational and family life, which may create stress within the family, has been identified as a causal factor in lower productivity of workers, particularily of working mothers (Attwood, 1980).

Curriculum in home economics often involves the teaching of skills in family communication, budgeting, child care, time-management, meal preparation and combining work and family life. This curriculum needs to be expanded to reach more potential workers, both men and women. Improved family living skills can lead to a better functioning family, with less stress on working members, which in turn may positively affect the worker's productivity on the job.

Preparation of quality child care workers can have an indirect affect on productivity. If quality child care is available, workers may be more likely to continue their employment with less absenteeism. Increased continuity in employment would enable workers to move into higher, more productive positions.

Training Programs for Special Populations. The Vocational Education Amendments of 1976 (PL 94-483) Title II mandate that vocational education programs be provided to three national priority subpopulations: handicapped, economically disadvantaged, and limited English speaking. The amendments promote the development of special services for these groups to bring them into the mainstream of the labor force. Although services have often been provided to these special populations for humanitarian purposes, many observers are beginning to realize that the productive participation of these special subpopulations in the labor force is central to the revitalization of the economy. Because economically disadvantaged, handicapped, and limited English speaking subpopulations represent a significant portion of the labor force, increasing their opportunities to become productive workers can affect the overall productivity of the labor force. Vocational educators need to be prepared to meet the special needs of these subpopulations.

Dissemination

Vocational education must disseminate information and implement programs related to improving worker productivity in order to have a substantial impact on productivity growth. This includes the dissemination of information to vocational educators and to the public, as well as establishing cooperative efforts with other networks.

Increased Public Awareness. With increased frequency and intensity, the issue of America's declining productivity growth rate is being raised. Productivity and the factors which have contributed to the declining growth rate are topics which have been widely discussed and examined during the past several years.

The purpose, roles and responsibilities of vocational education, as identified in a position statement of the National Association of State Directors of Vocational Education (1980), provides evidence of the linkage among education, the workforce and productivity. According to this paper, the main purposes of vocational education are to: 1) provide individuals with the skills they need to attain economic freedom and 2) enhance the productivity of local, state and national economies.

Vocational educators need to increase public awareness of the purposes of vocational education and the effects of vocational education on productivity. A heightened public awareness can help to establish an improved linkage between vocational education and prospective users. It can also assist in maintaining continued support from government and the private sector.

Stronger Linkages Between Vocational Education and Commerce and Industry. An open communication system between education and business and industry can help create programs in both areas which are more relevant to the needs and expectations of workers. Working with the private sector to establish clear guidelines as to what should be taught in school and what can best be learned at work is one way to begin cooperative efforts to educate and train productive workers. These guidelines may be established at the national and state levels, and may differ from one industry to another, but must be flexible enough to accomodate local differences and needs. The establishment of strong, active, and effective advisory councils for vocational education programs operating at the local level is a mainstay for achieving these guidelines. In most communities such councils exist but have not been given this task and are seldom utilized to their fullest extent.

The vocational education system can be actively involved in workforce planning. Although the improved productivity of a firm is a factor in its long-run competitiveness and viability, the employees' fear of displacement, especially in periods of economic uncertainty, represents a substantial barrier to training which would improve individual and group productivity. Productivity improvements efforts could be enhanced if higher productivity were not regarded as a threat to job security. As firms estimate their future labor requirements and skill needs, vocational education can help to deliver programs for retraining to those workers who are affected.

As new entrants to the labor market, youth are generally less productive because they lack experience (Freeman, 1979, Mark, 1979). Building on the assumption that youth become more productive workers as they gain experience, the need for expansion of cooperative efforts between education and work for young people while in school is apparent. Almost 40% of high school students aged sixteen to nineteen report either working or looking for work (Wirtz, 1975, Parnes, 1971). This represents a broad base already in place for the further development of work-study and cooperative education learning programs. Wirtz (1975) concluded that "young people are telling us, by what they are already doing, that we are making a serious mistake in keeping two separate sets of books and virtually ignoring this now substantial area of dual activity simply because the two parts of it come under different institutional jurisdictions" (p.27).

One step in the establishment of a stronger linkage may be to examine current model linkage systems and to determine their effectiveness. Adaptations of these models could then be implemented on a local, state or national level.

Stronger Working Relationship Between Vocational Education and Federal Employment and Training Programs. Efforts designed to develop a trained, employed and productive workforce include by their very nature the vocational education network. Vocational education must become, and be recognized as, an integral part of the economic development strategy of states, regions, and local communities. Methods need to be devised which link vocational education programs to broad employment and training programs and to the needs of employers.

Agreement has been expressed on the need for cooperative arrangements among the vocational education system and the federal employment and training system. A position statement of the National Association of State Directors of Vocational Education (1980) indicated that the "responsibility for economic development, productivity, and efficiency is shared by vocational educators, employers, employees, community agencies, and government" (p. 4).

The authors and advocates of employment and training programs at the national level have recognized the imperative nature of a strong interface between such programs and vocational education. For example, the CETA Admendments of 1978 openly encourage and even mandate in one case the linking of CETA programs with education. Although there are philosophical and organizational differences between vocational education and CETA, progress is being made toward the development of more cooperative efforts. Atteberry and Stevens (1980) suggested that:

> Vocational education involvement in CETA can include classroom training, on-the-job training and a variety of services, ranging from determining the appropriate employment and training activity for an applicant to providing post-termination services for clients who have moved on to unsubsidized jobs. Opportunities for CETA-vocational education linkages may involve orientation to the world of work, counseling, employ-ability assessment, job development and vocational exploration activities (p. 4)

More work needs to be done in the area of investigating and implementing programs designed to increase cooperative efforts.

SPECIFIC RECOMMENDATIONS AND SUGGESTED ACTIVITIES

The following pages present specific recommendations for vocational education research and development activities relating to improving the productivity of the workforce. Obviously, the list does not include everything which might be considered. Rather, it is one which, in our judgement, is manageable yet provides a wide range of suggestions. Recommendations are presented in four major categories: research, curriculum development, professional development and dissemination.

The recommendations are prioritized as either A, B, or C. Recommendations assigned an A priority are those which are deemed to be most important at this time by the project staff, and in most cases should be accomplished before taking action on recommendations assigned as priority B or C.

In addition, each recommendation is accomplished by suggested activities which are designed to be helpful in initiating action on the recommendation. The activities should be thought of as examples of methods to initiate action on the recommendations rather than as the only methods available or as detailed, step-by-step procedures.

Category: Research

Recommendations	Priority	Suggested Activities
1. Investigate the problem of accurately measuring the productivity of workers.	A	1.1. Establish a working relationship with labor economists and others to investigate the problem of accurately measuring productivity of workers in the service sector and new and emerging occupations. 1.2. Analyze productivity measurement techniques currently used to determine possible methods for improving measurement of productivity in the service sector and for new and emerging occupations. 1.3 Develop recommendations for new or adapted methods to measure productivity more accurately.
2. Evaluate the effects of vocational education and training on worker productivity.	A	2.1 Conduct follow-up studies of vocational education students to determine the effects of vocational education and training on worker productivity. 2.11 Utilize longitudinal data where possible. 2.12 Utilize student employer survey information. 2.13 Utilize methods for 1.3 for assessment. 2.2 Report findings and make recommendations for program improvement.
3. Investigate the appropriateness and effeciveness of current vocational education delivery systems regarding productivity	A	3.1 Determine the effects of different types of vocational education and training on productivity. 3.11 Consider effects of different delivery systems, types of training, methods utilized, etc. for different sub-populations.

Category: Research

Recommendations	Priority	Suggested Activities
		3.2 Examine changes in the composition of the labor force to determine training needs of various groups of people and determine which delivery system(s) can best provide the training.
		3.3 Compare alternative models for delivering vocational education to determine which models can be most effective for increasing productivity. Models to examine may include: 3.31 Secondary School 3.32 Post-secondary school 3.33 In-plant 3.34 Short-term, intensive programs 3.35 Long-term programs
4. Investigate current work values, expectations and motivational factors of employees and employers relating to productivity.	B	4.1 Conduct a "state-of-the-art" study on employees' values, attitudes, and expectations related to productivity. 4.11 Review of recent related studies and literature 4.12 Workers forum to discuss attitudes toward work productivity and recommendations for vocational education. 4.13 Survey of worker expectations related to productivity.
		4.2 Conduct a "state-of-the-art" study on employers' values, attitudes, and expectations related to productivity. 4.21 Review of recent related studies and literature. 4.22 Employers' forum to discuss topic and recommendations for vocational education.

Category: Research

Recommendations	Priority	Suggested Activities
		4.23 Survey of employer expectations related to productivity
		4.3 Based on findings of 4.1 and 4.2, develop recommendations for program improvement activities.

Category: Research

Recommendations	Priority	Suggested Activities
5. Investigate the effects of organizational changes on productivity.	B	5.1 Determine the effects of various supervisory styles on productivity. 5.11 Study the effects of various job designs on productivity 5.12 Investigate training needs created by job re-design 5.13 Investigate alternative work schedules and their effects on productivity, e.g., flexitime and permanent part-time 5.14 Investigate training needs created by alternative work schedules. 5.2 Design supervisory training programs, to affect worker productivity.
6. Conduct comparative research to determine how other nations have increased productivity through education and training.	C	6.1 Review literature on productivity growth in other nations, e.g., Japan, West Germany, France, etc., to determine which factors have influenced productivity. 6.2 Send a group of vocational educators to other nations to investigate their systems and determine which education and training aspects could be adopted. Areas to investigate might include: 6.21 Working environment 6.22 Attitudes of workers 6.23 Educational system 6.24 Re-training programs 6.25 Management of systems 6.26 Incentive programs. 6.3 Bring consultants from other nations to work with vocational educators on productivity issues.

Category: Research

Recommendations	Priority	Suggested Activities
		6.4 Develop a summary report which synthesizes findings and recommends vocational education and training program improvement activities.

Category: Curriculum Development

Recommendations	Priority	Suggested Activities
7. Assess the need for curriculum development related to improving productivity of the workforce.	A	7.1 Review existing state sponsored curriculum materials to determine: (1) which curriculum materials could be adopted or adapted for teaching concepts related to improving productivity and (2) curriculum development needs. Special attention should be given to materials related to: 7.11 Importance of productivity 7.12 General work skills 7.13 Attitudes toward work 7.14 Supervisory training 7.15 Entrepreneurship and/or small business management 7.16 Family living skills and child care 7.17 Organizational change. 7.2 Review curriculum materials developed in other states. 7.3 Develop a system for the analyses of curriculum materials reviewed. 7.4 Report findings of the assessment and make recommendations for curriculum adaptation and development.
8. Adapt identified curriculum materials for implementation in vocational education programs.	B	8.1 Based upon the findings of 7.1, select curriculum materials which can be adapted. Types of changes which may be needed are: 8.11 Minor content changes 8.12 New methods of delivery 8.13 Revisions to accomodate special populations (e.g., economically disadvantaged, limited English speaking, etc.).

Category: Curriculum Development

Recommendations	Priority	Suggested Activities
		8.2. Develop a system for adapting existing curriculum materials.
		8.3. Disseminate adapted curriculum materials to appropriate target audiences, and provide technical assistance as needed.
9. Develop needed curriculum materials related to productivity.	C	9.1 Based upon findings of 7.1, develop curriculum materials for areas where a need has been identified, e.g., materials explaining the concept of productivity and its importance.
		9.2 Disseminate curriculum materials to appropriate target audiences for implementation.
		9.3 Provide in-service and technical assistance as needed.

Category: Professional Development

Recommendations	Priority	Suggested Activities
10. Assess the professional development needs of vocational education personnel at local and state levels regarding specific areas in which vocational education can impact on worker productivity.	A	10.1 Survey vocational education personnel regarding professional development needs on: 10.11 The concept of productivity and its importance 10.12 Linkage activities with commerce and industry and CETA 10.13 Cooperative education programs 10.14 Small business management and entrepreneurship 10.15 Organizational changes 10.16 Supervisory training 10.17 Alternate delivery systems 10.18 Attitudes and expectations of workers. 10.2 Develop methods to conduct inservice training.
11. Encourage teaching of ways to improve the productivity of the workforce in preservice vocational teacher education programs.	B	11.1 Utilize university liason council and other teacher educators to provide suggestions for incorporating concepts related to worker productivity into teacher education programs. 11.2 Develop methods for including topics related to productivity in teacher education programs. 11.3 Increase awareness of productivity issues and ways in which vocational education can impact on worker productivity. 11.4 Assist future teachers in adapting curriculum materials currently available, to incorporate productivity concepts.

Category: Professional Development

Recommendations	Priority	Suggested Activities
		11.5 Assist future teachers in learning how to implement new curriculum materials designed to increase worker productivity.
		11.6 Assist future teachers in implementing new delivery systems particularly for retraining and for special populations.
12. Provide inservice training to vocational education personnel concerning specific areas in which vocational education can impact on worker productivity.	B	12.1 Based upon the findings of 10.1, develop ways to meet inservice needs of vocational education teachers regarding productivity.
		12.2 Increase awareness of productivity issues and ways in which vocational education can impact on worker productivity.
		12.3 Assist teachers in the process of adopting or adapting curriculum materials to incorporate productivity concepts.
		12.4 Assist teachers in implementing new curriculum materials designed to increase worker productivity.
		12.5 Assist teachers in implementing new delivery systems.
13. Provide technical assistance to individuals or local school districts implementing productivity concepts in their curricula.	B	13.1 Utilize state consultants to provide technical assistance, regarding productivity.
		13.11 Develop a "package" of suggested activities and procedures which can be adapted for local use.
		13.12 Provide assistance (training) to state staff.
		13.13 Incorporate the concept of vocational education to increase worker productivity into the state program improvement process.

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Category: Dissemination

Recommendations	Priority	Suggested Activities
14. Increase vocational educators' awareness of ways in which voctional education can impact on worker productivity.	A	14.1 Disseminate productivity monograph. 14.2 Conduct a media campaign on vocational education's role increasing worker productivity. 14.3 Disseminate information on productivity to vocational educators through: 14.3 1 Journal articles 14.3 2 Inservice training 14.3 3 Illinois Vocational Education Association.
15. Increase public awareness of the effects of vocational education programs on productivity.	A	15.1 Conduct a media campaign on vocational educations role in increasing worker productivity. 15.2 Encourage vocational educators to share methods and materials related to specific ways in which vocational education can impact on worker productivity. 15.3 Include discussions of productivity on agendas of vocational education advisory councils. 15.4 Encourage increased use of cooperative education programs as a method to increase productivity of young workers.
16. Develop a stronger linkage between vocational education and commerce and industry.	A	16.1 Expand the role of local vocational education advisory committees to include the development of guidelines for what should be taught in schools to help increase productivity.

Category: Dissemination

Recommendations	Priority	Suggested Activities
		16.2 Encourage expanded use of cooperative education programs as a method to increase productivity of young workers.
		16.3 Develop brochures directed toward commerce and industry personnel concerning the effects of vocational training on worker productivity.
17. Develop a stronger working relationship between vocational education, and federal employment and training programs.	A	17.1 Provide information to federal employment and training personnel concerning the roles and responsibilities of vocational education in improving the productivity of the workforce.
		17.2 Develop methods to work cooperatively with federal employment and training programs to provide services and training which can improve the productivity of the workforce.

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